Socioeconomic Monitoring CINMS

What We Know ?

Commercial Fisheries

1. Catch and Ex Vessel Value of Catch (what the fishermen receive for catch) from the California Department of Fish and Game (CDFG) fish ticket system. Data is organized in 10-minute by 10-minute blocks (100 nautical square miles). We currently have the data for years 1988 – 2000. Catch and Ex Vessel Value is available by fisherman, species, gear and port where landed. We currently use a 22-block definition for the CINMS. Other areas can be defined using data from surrounding blocks. We organized the information into 27 species groups, 14 of which accounted for over 99 percent of the ex vessel value of catch from the CINMS.

2. Catch and Ex Vessel Value of Catch for 1999 in 1-minute by 1-minute cells (1 nautical square mile) for the following species groups:

    1) Market Squid
    2) Kelp
    3) Urchins
    4) Spiny Lobster
    5) Prawn
    6) Rockfishes
    7) Flatfishes
    8) Sea Cucumbers
    9) Wetfish (anchovies, sardines and mackerel)
    10) Crabs
    11) California sheephead
    12) Sculpin & Bass
    13) Tuna
    14) Shark

    NOTE: These 13 fish species (not including kelp) made up over 99 percent of the ex vessel value of the 1999 CINMS commercial catch. Prawn and Rockfishes distributions were based on relatively weak samples. If spatial distributions are to be monitored at the 1-minute by 1-minute level of spatial resolution, then better baseline data would be required.

3. Distribution of catch by block and species group where caught and port where landed for 1999. Can be updated using CDFG trip ticket data.

4. Economic Impact Model.

Model is a connected set of Excel spreadsheets. This model includes multipliers that translate ex vessel value of catch by species group and port where landed into income generated in the county where the port of landing is located. The multipliers are from the Pacific Fishery Management Council's Fishery Economic Assessment Model (FEAM).

NOTE: Model gives a reasonably good estimate of the economic impact in the local county economies.

5. Socioeconomic Profiles of Fishermen

We had profiles from three sources. The first was a sample of Tri-County fishermen (fishermen living in San Luis Obispo, Santa Barbara and Ventura counties) and a sub-sample of these that fished in the Channel Islands. This was from a study by University of Nevada researchers on a project funded by the Department of Interior's, Minerals Management Service. NOAA hired Dr. Caroline Pomeroy who surveyed a sample of squid/wetfish fishermen and Dr. Craig Barilotti that surveyed a sample of all other commercial fishermen (other than squid/wetfish fishermen). The samples were good for capturing the majority of catch and value of catch, but are not representative of all fishermen.

We know very little about "marginal fishermen", i.e., those fishermen that rely for only a small amount of their incomes from commercial fishing catch. Nineteen (19) percent of the fishermen in the CINMS accounted for 82 percent of the value of catch in 1999.

NOTE: Given the new rules for accessing CDFG data, it may be possible to design "representative samples" of fishermen for monitoring.

6. Costs, Earnings and Investment

We attempted to obtain this information in the Pomeroy and Barilotti samples in 1999. We obtained reasonably good information on investment, but incomplete information on costs.

NOTE: Any future effort must be contingent on getting fishermen's cooperation in developing costs and earnings profiles. ***We consider this a major gap in baseline information for monitoring.***

7. Knowledge, Attitudes and Perceptions of Management Strategies and Regulations

From the Pomeroy study and an Ethnographic Data Study done by Kronman and others, we have some, but limited information on fishermen's knowledge, attitudes and perceptions of management strategies and regulations. Especially with respect to the current proposed set of marine reserves.

NOTE: Some other research may have been underway, but not available to the Socioeconomic Panel for the CINMS Marine Reserves. There is a need to update what we know. ***For monitoring purposes, we consider this a major gap.***

8. Nonmarket Economic Value of Commercial Fisheries

Nonmarket economic values for commercial fisheries includes estimates of consumer's surplus and producer's surplus (economic rents or above normal rates of return on investment). Consumer's surplus may decrease if supplies of commercial fishing products are curtailed to a large enough extent that prices to consumers' increases. Consumers suffer a loss based on increased prices. Such losses could potentially occur as a result of marine reserves.

To estimate consumer's and producer's surplus requires econometric studies of supply and demand for commercial seafood products. No studies currently exist for California seafood products. We have given California Sea Grant $70,000 to initiate some studies.

To estimate producer's surplus (economic rent), we need good studies of cost, earnings and investment. We only found one study for the San Pedro Wetfish fishery (market squid, anchovies, sardines and mackerel). They were earning less than normal returns to investment meaning the fishery is over capitalized or economically overfished. Economic overfishing can occur even though biological overfishing has not occurred.

NOTE: ***Econometric studies are a major gap, but we have already taken some action to fill this gap.***

Recreational Uses

1. Recreational Fishing Use.

We were able to generate very good estimates of recreational use from charter boats and party boats from a census of 51 operators in the CINMS for year 1999. This use was measured in person-days of use and was mapped in 1-minute by 1-minute cells.

We were also able to generate estimates of recreational fishing from the National Marine Fisheries Service, Marine Recreational Fishing Statistics Survey (NMFS-MRFSS). Again, we were able to map this use by 1-minute by 1-minute cells. The NMFS-MRFSS spatial data collection is experimental on the West Coast of the U.S. There is an unknown amount of uncertainty of the data, since to date there has been no assessment of the experiment.

NOTE: ***The private household boat-fishing component of use might be considered a major gap for purposes of monitoring.***

2. Recreational Consumptive Diving

As with recreational fishing, we were able to generate very good estimates of recreational consumptive diving use from charter boats and party boats from a census of 51 operators in the CINMS for year 1999. Use was measured in person-days and was mapped in 1-minute by 1-minute cells.

We were able to generate estimates of recreational consumptive use from private household boats using information from CDFG and the spatial patterns of use from the charter and party boat surveys and the CINMS aerial fly-overs.

NOTE: ***The private household boat consumptive diving use is considered a major gap for purposes of monitoring.***

3. Recreational Nonconsumptive Uses

As with recreational fishing and consumptive diving, we were able to generate very good estimates of recreational nonconsumptive uses for those that used charter/party boat or guide services from a census of 51 operators in the CINMS for year 1999. Use was measured in person-days and mapped in 1-minute by 1-minute cells. Nonconsumptive uses included nonconsumptive diving, whale watching, kayaking/sightseeing and sailing.

NOTE: ***No information was available for private household boat nonconsumptive uses and therefore represents a major gap.***

4. Economic Impact Model of Recreational Use

We developed an economic impact model of recreational use. The model uses spending profiles for each type of recreational use. For recreational fishermen, these profiles are based on a year 2000 survey of southern California recreational fishermen by mode of fishing (e.g., charter, party or private household boat and by shore fishermen). For consumptive divers and nonconsumptive users, spending profiles had to be patched together from a variety of sources.

County Census data for sales, wages & salaries income and wages & salaries employment by industry and proprietor's income and employment are used to estimate direct economic impacts from spending estimates. Ranges of multipliers are then applied to estimate total economic impacts. Key here is the assumptions on the percent of recreational users that live in each county where the spending takes place, because there are no multiplier impacts from spending by residents in the county where they live. We assumed 50 percent of the users were local users (most likely and under estimate, which leads to overestimate of economic impact).

NOTE: ***Percent of recreational use by local residents and multipliers are major gaps.***

5. Profiles of Recreational Users

We don't have socioeconomic profiles of recreational users of the CINMS.

NOTE: ***Socioeconomic profiles of recreational users of the CINMS is a major gap.***

6. Nonmarket Economic Values of Recreational Uses

There are several studies done for recreational fishing I southern California, one which should be available soon based on the year 2000 NMFS-MRFSS survey. For all other recreational activities, both consumptive and nonconsumptive there are few if any studies available for southern California.

NOTE: ***For nonfishing recreational uses, there are no studies currently available for nonmarket economic values – a major gap.***

7. Knowledge, Attitudes and Perceptions of Management Strategies and Regulations.

From the Ethnographic Data Study, there is some, but very limited information about recreational fishermen's knowledge, attitudes and perceptions of management strategies and regulations, especially the marine reserves currently being proposed.

NOTE: ***This is a major gap.***

Nonuse or Passive Economic Use Value

Although there have been several National and California statewide surveys about support for no take areas in the marine environment, there have been no studies of nonuse or passive economic use values of the marine environment in California.

NOTE: ***Although this is a major gap and potentially the largest benefit category of marine reserves, a nonuse value study would be very expensive to implement and would require a multiple-agency partnership.***